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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/411,418	10/01/1999	JOHN A. CAREY	99-TK-257	8281

7590 11/01/2002

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EXAMINER

DAY, HERNG-DER

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 11/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/411,418

Applicant(s)

CAREY, JOHN A.

Examiner

Herng-der Day

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 1999.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

1. Claims 1-25 have been examined and claims 1-25 have been rejected.

Drawings

2. The following drawings are objected to for various reasons.

- 2-1. The Draftsperson has objected to the drawings; see the copy of Form PTO 948 for an explanation.

- 2-2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

- (a) vector FIFO 150, as described in line 19 of page 20.
- (b) a portion 152, as described in line 21 of page 20.
- (c) logic 154, as described in line 23 of page 20.
- (d) logic OR and target vector B, as described in line 22 of page 21.
- (e) resource vector D, as described in line 24 of page 22.

Also note, as described in line 33 of page 21, "an output 190 of the buffer 184", however, in Fig.4 cont, there is no indication that 190 is the output of the buffer 184.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

- 2-3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:

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(a) Resource Vector O, in Fig.4 cont.

(b) 212 and 214, in Fig.5.

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Abstract

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

5. The disclosure is objected to because of the following informalities. Appropriate correction is required.

5-1. It appears that "there if provided a method", as described in lines 33-34 of page 2, should be "there is provided a method".

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5-2. It appears that “initiator ports 10”, as described in line 1 of page 4, should be “initiator ports 8”. Also note, the “initiator port 10”, as described in line 3 of page 4, should be “initiator port 8”.

5-3. As described in line 25 of page 7 through line 10 of page 8, some disclosures on the right-hand side of these three paragraphs are truncated.

5-4. It appears that “the request packet also includes a transaction identity field F8”, as described in lines 34-35 of page 8, should be “the response packet also includes a transaction identity field F9”.

5-5. As described in lines 30-31 of page 21, both the first multiplexer and the second multiplexer use the same number sign “182”. Also note, in page 21, the first multiplexer has been assigned three different number signs: “182” in line 30; “24” in line 31; and “180” in line 37.

5-6. It appears that “input to the the model”, as described in line 8 of page 27, should be “input to the model”.

Claim Objections

6. Claims 10, 12-13, and 15 objected to because of the following informalities. Appropriate correction is required.

6-1. Regarding claim 10, “A method as claimed in claimed in claim 9”, as described in line 1 of the claim. (Emphasis added.)

6-2. Regarding claim 12, “A method as claimed in claimed in claim ”, as described in line 1 of the claim. (Emphasis added.)

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6-3. Regarding claim 13, "A model of a initiator", as described in line 1 of the claim.

(Emphasis added.)

6-4. Regarding claim 15, "wherein in an access", as described in line 1 of the claim.

(Emphasis added.)

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

For example of implementations, as described in lines 11-12 of page 9, "Embodiments of the present invention can be implemented in systems where the requests and responses are not in a packet format". Therefore, it essentially sets no limitations on the requests and responses because in the rest of the specification the Applicant teaches implementations in systems where the requests and responses are in a packet format. Accordingly, it is unclear how one skilled in the art may implement the invention in systems where the requests and responses are not in a packet format, but in, for example, a free format. An explanation (with amendment to the specification if necessary) is required.

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Next, as described in lines 11-12 of page 15, “the model permits one target port to be in communication with one initiator port at the same time that another target port is in communication with another target port”. It is unclear for one skilled in the art why the invention wants to model initiator ports and target ports separately if target port will be able to communicate with another target port. An explanation (with amendment to the specification if necessary) is required.

For example of parameters, both parameters `resource_mapping_k` and `return_resource_mapping_k` define the association between the routing resources and the target ports, as described in lines 28-30 of page 11 and in lines 21-23 of page 14, respectively. No parameter “defines the association between the routing resources and the initiator. Accordingly, it is unclear how one skilled in the art may implement the invention without knowing the association between the routing resources and the initiator. An explanation (with amendment to the specification and claims if necessary) is required.

Next, as described in lines 4-7 of page 14, “The `return_resource_arbitration_k` parameter defines the arbitration method used by the response arbiter 42. If the parameter is set to ‘1’, the least recently used arbitration mode is used for arbitrating between the requests from the various target ports 10”. It is unclear for one skilled in the art why the response arbiter 42 arbitrates between the requests instead of arbitrating between the responses. An explanation (with amendment to the specification and claims if necessary) is required.

For example of functions, as described in lines 20-21 of page 15, “The `return_decode_f` function defines the mapping between the response packets and the target device”. No other function “defines the mapping between the response packets and the initiator ports”.

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Accordingly, it is unclear how one skilled in the art may implement the invention without knowing the mapping between the response packets and the initiator ports. An explanation (with amendment to the specification and claims if necessary) is required.

Next, for the `forward_decode_f` function, as described in lines 16-18 of page 15, "The retimer providing the delay may be the response arbiter retimer 44 and/or the target retimer". Besides, "The `forward_decode_f` is a mapping function for requests from an initiator port to a target port" as described in lines 33-35 of page 14. Accordingly, it is unclear for one skilled in the art why the `forward_decode_f` function does not let the request arbiter retimer 40 and/or the initiator retimer 25 provide the delay but instead let the response arbiter retimer 44 and/or the target retimer provide the delay. An explanation (with amendment to the specification and claims if necessary) is required.

Then, as described in lines 11-12 of page 15, "it may be possible to map a single request to two or more target devices", however, as described in line 26 of the same page, "mapping a single request to multiple ports is forbidden". Accordingly, it is unclear how one skilled in the art may implement the invention with two contradictory statements. An explanation (with amendment to the specification if necessary) is required.

With so many unclear implementations, functions, and parameters, claims 1-25 eventually contain subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

9. Claims 7-8 and 11-12 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably

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convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

9-1. Regarding claim 7, the claim recites the limitation defining “the association between the routing resources and the initiator” in lines 8-9 of the claim. It is vague and indefinite because it has not been disclosed in the specification. The parameter resource_mapping_k “defines the association between the routing resources and the target ports”, as described in lines 28-30 of page 11. The other parameter return_resource_mapping_k also “defines the association between the routing resources of the response transport 35 and the target ports 10”, as described in lines 21-23 of page 14. Nevertheless, no parameter “defining the association between the routing resources and the initiator” has been disclosed in the specification.

9-2. Claim 8 is a dependent claim of claim 7 and is rejected using the analysis of claim 7.

9-3. Regarding claim 11, the arbitration method disclosed in the specification, as described in lines 4-7 of page 14, arbitrates between the requests from the various target ports. However, the arbiter is provided between the targets and the interconnect. Therefore, the disclosed arbitration method will not provide the claimed function.

9-4. Claim 12 is a dependent claim of claim 11 and is rejected using the analysis of claim 11.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-4, 12, and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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11-1. Regarding claim 1, the claim recites the limitation “said initiator port” in line 9 of the claim. There is insufficient antecedent basis for this limitation in the claim.

11-2. Regarding claim 3, the claim recites the limitation “said target port” in line 8 of the claim. There is insufficient antecedent basis for this limitation in the claim.

11-3. Regarding claim 12, this dependent claim fails to point out its independent claim. For the purpose of claim examination, the Examiner will presume that claim 12 is a dependent claim of claim 11.

11-4. Regarding claim 25, the claim recites the limitation “said initiator port” in line 7 of the claim. There is insufficient antecedent basis for this limitation in the claim.

11-5. Claims 2 and 4 are rejected as being dependent on a rejected claim.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C.

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122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

13. Claims 9, 11, and 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Kothary, U.S. Patent 6,249,528 issued June 19, 2001 and filed March 12, 1998.

13-1. Regarding claim 9, Kothary discloses a method of designing an arbiter comprising the steps of:

using an arbitration model having a plurality of different arbitration methods and selecting one of the plurality of arbitration methods available in said model (arbiter 28, column 12, lines 50-52).

13-2. Regarding claim 11, Kothary discloses a method of designing an arbiter comprising the steps of:

using an arbitration model having a plurality of different arbitration methods and selecting one of the plurality of arbitration methods available in said model (arbiter 28, column 12, lines 50-52).

13-3. Regarding claim 21, Kothary discloses an arbiter comprising:

an input for receiving a plurality of requests (ATM cells, column 7, lines 39-44) from a plurality of sources (ATM input ports, column 7, lines 39-44);

arbitration logic for arbitrating between said requests in accordance with an arbitration method (ATM arbitration, column 9, line 47 through column 11, line 7);

a store for storing information defining the priority of said sources (Priority table, column 9, lines 19-26);

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whereby said arbitration logic is arranged to update said store after arbitration to define the priority of said sources for a subsequent arbitration (EOM bit tells queue manager to update link lists, column 10, lines 51-55).

13-4. Regarding claim 22, Kothary discloses a table in which the position of the source in the table determines the priority of the source (Priority table, column 9, lines 19-26 and FIG. 6, PRIORITY TABLE 64).

13-5. Regarding claim 23, Kothary discloses packet control logic for maintaining the ordering of packets containing the requests (link lists, column 8, lines 60-67).

14. Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Schrofer, U.S. Patent 4,682,284 issued July 21, 1987.

14-1. Regarding claim 24, Schrofer discloses a queue for storing a predetermined maximum number of outstanding requests, said queue comprising:

a store for storing the outstanding requests (stores the request, Abstract, lines 11-12), a location being provided for each of the maximum number of outstanding requests (storage locations, column 8, lines 25-27);

logic for determining if each of said locations contains an outstanding request and if so to provide a signal indicating that the queue is full (queue 301 is full, column 10, lines 51-55).

Allowable Subject Matter

15. Claims 1-8, 10, 12-20, and 25 are not taught exactly by the prior art, and would be allowable if the above rejections under 35 U.S.C. 112, first and second paragraphs are overcome.

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Besides, for dependent claims 10 and 12, rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference to Normoyle et al., U.S. Patent 5,689,713 issued November 18, 1997, is cited as disclosing method and apparatus for interrupt communication in a packet-switched computer system.

Reference to Van Loo et al., U.S. Patent 5,907,485 issued May 25, 1999, is cited as disclosing method and apparatus for flow control in a packet-switched computer system.

Reference to Hung et al., U.S. Patent 6,353,618 issued May 5, 2002, and filed February 4, 1999, is cited as disclosing method and apparatus for controlling traffic flows in a packet-switched network.

Reference to Yang et al., "Design and Analysis of Multiple-Bus Arbiters with Different Priority Schemes", International Conference on Databases, Parallel Architectures and Their Applications, March 1990, pages 238-247, is cited as disclosing arbiter design and analysis.

Reference to Tamir et al., "Symmetric Crossbar Arbiters for VLSI Communication Switches", IEEE transactions on Parallel and Distributed Systems, January 1993, pages 13-27, is cited as disclosing arbiter design.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Herng-der Day whose telephone number is (703) 305-526. The examiner can normally be reached on 8:30 - 17:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J Teska can be reached on (703) 305-9704. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Herng-der Day
October 28, 2002



KEVIN J. TESKA
SUPERVISORY
PATENT EXAMINER